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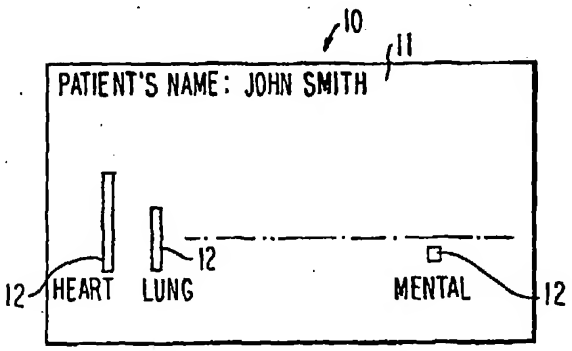

(57) Abstract

A method of apprising a health care professional about the overall state of health of a respective patient involves assigning all conditions likely to adversely affect the long-term health of patients to different categories (12) each relating to one of the various human body systems, and rating such conditions within their respective categories in accordance with their seriousness and severity. Then, when the respective patient (11) is examined and any of such conditions is found to exist, an entry is made into a record characterizing the condition by category and rating. This stored information is available to health professionals conducting subsequent examinations of the same patient to alert them to possible problems that patient has, even if these are in an area other than that of their expertise.

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METHOD FOR GENERATING AND ACCESSING PATIENT SPECIFIC HEALTH INDEX

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention relates to the fields of medicine and allied health professions or practices in general, and more particularly to the determination and monitoring of the general state of health of patients.

2. Description of the Related Art

It is well known in the field of medicine that the more a physician or other health professional or practitioner knows about the past afflictions or other influences that may have befallen the patient or affected his or her overall health, the more likely it is that the diagnosis and/or treatment of any disease or illness, whether recurring in, or subsequently contracted or suffered by, that patient, will be the correct one. Yet, traditionally, this kind of information was included in patients' files that were kept, usually only for a limited amount of time, in the office of a physician who had examined and/or treated the particular patient, and/or at a hospital to which that patient was admitted in the past. If the patient chose to change physicians, or to be examined by a specialist or a physician or other health professional with a different area of specialization than a previous one, or was admitted to a hospital, possibly on an emergency basis, the only way to make that information available in toto to such subsequent health professionals was, and in many cases still is, to forward the patient's file or a copy of its contents to them. This is not very practical; moreover, the time delay incurred while attending to such physical transfer may be of critical importance in some cases in that some crucial information may not reach the subsequent health professional until after actions affecting the patient's well-being may have already been taken.

In view of the problems outlined above, it is currently customary to have the patient or someone acting for him or her prepare that patient's medical history record for use at a particular facility (physician's office, hospital, clinic etc.). This is preferably done even prior to letting the patient see a health professional, especially when that professional is not familiar with the particular patient and/or his or her past medical problems or overall health. This is not only cumbersome and bothersome to the patients in that they have to fill out --usually multipage-- forms, or otherwise answer a panoply of questions about their medical pasts, but also may not be reliable in that a particular patient may overlook a potentially important question, or fail to answer it, whether by design in that he or she desires to conceal such information, or because he or she had forgotten about having suffered of and/or being treated for a particular health condition. It also requires that the patient be in full possession of his or her faculties at the time of giving the medical history, or that another person familiar with such history be available to give it for him or her, and that such other person be aware of all pertinent facts. Also, such history will ordinarily be less than comprehensive not only because it may be felt that some questions are taboo or sensitive or have little relevance to the area in which the particular health professional practices or specializes, but also in that it is desired not to impose undue burden on the patient by asking too many questions, especially if such questions could be perceived to be irrelevant to the problem that brought the patient to the facility in the first place.

The advent of the information age has brought with it a veritable explosion of possibilities for information storage and retrieval. Many attempts have already been made to capitalize on these developments. So, for instance, U.S. patent No. 4,878,175 discloses a hospital information system that renders it possible to store information concerning any

particular patient and to access and/or add to or otherwise alter such information from a plurality of locations. However, in this system, like in all other systems of a similar nature that are known to be currently available, the patient information sharing is limited to a single hospital or similar health facility.

Another use of computer technology is revealed in U.S. patent No. 4,930,519, where various cardiopulmonary data is collected and eventually graphically presented in the form of a polygon, wherein the locations of the corners of such polygon on respective axes (each with its own scale or graduation) are indicative of the patient's performance in particular respects related to the cardiovascular function. In this instance, the area of inquiry (testing) is limited to the specialty, or one of the areas of competence or expertise, of the particular health professional, and once more to the particular physician's office, hospital department, hospital or other health care facility.

3. Objects of the Invention

Accordingly, it is an object of the present invention to avoid the disadvantages of the prior art.

More particularly, it is an object of the present invention to provide a method of apprising a health professional who is about to examine and or treat a particular patient about the overall state of that patient's health.

Still another object of the present invention is to develop the method of the type here under consideration in such a manner as to alert the examining health professional to the possible existence of medical problems which may not directly affect a medical condition in the area of practice of such professional but may have bearing on the diagnosis, prognosis and/or treatment of such condition.

A concomitant object of the invention is to devise a method

of the above type that is relatively simple to implement in devices that are either quite inexpensive or already available for other purposes, and easy to use.

SUMMARY OF THE INVENTION

In keeping with these objects and others that will become apparent hereafter, one feature of the present invention resides in a method of apprising health professionals about the general state of health of their patients. This method includes conducting at least one medical examination of the respective patient for the existence of conditions affecting the patient's health, followed by evaluating the results of that medical examination. Such an evaluation involves, in accordance with the invention, assigning each of such conditions that was found to exist in the respective patient to one of a predetermined number of categories each relating to a different one of various human body systems, rating the seriousness of each such particular condition within the category to which it is assigned on a seriousness scale specific to that category, and recording at least evaluation data indicative of the results of the assigning and rating steps regarding the respective patient on a recording medium suitable for access by other health professionals. In further accord with the present invention, the thus recorded evaluation data is to be utilized during a subsequent medical examination of the respective patient to alert an examining health professional to possible health problems of such patient, in that the data previously recorded on the recording medium regarding the respective patient is accessed as an appurtenant to such subsequent examination to retrieve from the recording medium at least the previously recorded evaluation data regarding the respective patient. After such retrieval, there is generated at least one visually perceptible report that displays the thus retrieved evaluation data by category and rating.

A particular advantage of the inventive method as described

so far is that the examining or attending health professional is presented with an overall "picture" of the respective patient's health and hence is able to decide, even before examining the patient, what areas of the patient's body to examine, what possible complications to be alert to when prescribing treatment, what bearing, if any, problems that the patient may have in other respects may have on the condition addressed by the particular professional, etc.

It is particularly advantageous when, in accordance with another aspect of the present invention, this method includes coordinating the scales of all of the categories with one another so as to be commensurate with each other such that conditions of comparable seriousness are rated the same regardless of their category. Under these circumstances, the generating step may include displaying the evaluation data graphically by category and position on the respective scales with substantially the same graduations for all of the scales.

In accordance with another advantageous aspect of this invention, the coordinating step includes collecting background information about all of the conditions that may afflict each of the various human body systems, and using such background information for attributing to each of such conditions a numerical value expressing the seriousness of such condition relative to others in the same category, and the severity of such condition. Then, the rating step advantageously includes determining the severity of the particular condition that has been found to exist in the patient for ascertaining the numerical value for the condition of such severity on the scale applicable to its category.

The novel features which are considered as characteristic of the invention are set forth in particular in the appended claims. The improved method itself, however, together with additional features and advantages thereof, will be best understood upon perusal of the following

detailed description of certain specific embodiments with reference to the accompanying drawings.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a graphic representation of an example of an image displayed on a display medium in the performance of the method of the present invention; and

Fig. 2 is a simplified perspective view of one type of equipment that is suited for use in performing the method of the present invention in generating the displayed image of the type shown in Fig. 1.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring first to Fig. 1 of the drawing in some detail, it may be seen that the reference numeral 10 has been used therein to identify an image display medium of any known type, such as a TV monitor screen, a sheet of paper or the like, as will be discussed below. The image display medium 10 is shown to actually display or carry an image 11, the latter constituting an important factor in the implementation of the present invention.

More particularly, as mentioned before, the present invention is concerned with a method of apprising a health professional who is about to conduct a medical examination and/or treatment of a patient, especially one whom this professional did not examine before, about the overall health of that patient. To this end, the display 11 shows, besides other information, like the patient's name for identification purposes, age, sex etc., a plurality of bars 12 often of different lengths, each one of them denoting the extent to which a different one of the various systems of the human body (e.g. cardiovascular, pulmonary, glandular, skeletal, and even cerebral and/or mental) has been affected in the past by any one of many conditions that may still have some reflection in or effect on the overall health state of the patient at the time of the examination, even though many years may have elapsed since that condition has been diagnosed and treated for the first or even the last time. As used herein, the term "condition" is intended to embrace not only identifiable illnesses, diseases, afflictions, impairments or the like, but also other factors known to have possible impact on the overall health of the patient. Such other factors may include, for instance, allergies (e.g. to penicillin or bee stings), habits (such as smoking, alcoholism or the like), or even genetic factors (family history of cancer, heart or lung problems and the like), to the extent that they may predispose the respective patient to certain ailments or otherwise adversely

affect his or her long-term health.

It will be realized that the image 11 of the kind shown in Fig. 1, or containing the same information but having the shape of the so-called pie chart or the like, provides a quick, at-a-glance guide to the doctor or other health professional, alerting him or her to possible problems with all of the patient's body systems, even those that do not constitute the subject of the current visit or hospitalization. This will help the professional in several respects. For one, it will help in the formation of a diagnosis of the medical condition underlying the current health problem or condition (illness, organ or system impairment or failure, or the like) in that it will alert the examining physician or other health professional or service provider to conditions affecting all systems of the patient's body, not only that which may fall into the area of expertise of that provider. Now, it often happens that an illness, especially a systemic one, manifests itself in various ways, often affecting more than one body system. Knowing which systems of the particular patient have been affected in the recent or even distant past may give the examining doctor important clues helping him or her to eliminate some of the possibilities of conditions with similar symptoms and to more rapidly and correctly zero in on the actually existing condition.

Another advantage will be encountered in the treatment stage. So, for instance, if an examining nephrologist is alerted to the fact that a particular patient has had a history of heart problems, he will immediately give preference to other, possibly less promising, treatments for kidney stones (such as ultrasound disintegration) over invasive surgery or other procedures involving total anaesthesia, in order not to unduly burden the patient's weakened heart. Of course, in most instances this impediment would have been discovered during examinations or tests routinely conducted prior to such surgical stone removal; yet, it is always

better to know of the existence of such impairment beforehand, especially since it may eliminate the need for running some of such tests.

Now, it should be clear that, for the method of the present invention to work properly, the patient must "walk in" into the doctor's office, clinic or hospital with some information concerning his or her past medical history. At the very least, that information must include the directions needed for accessing at least some of the data stored in a data base located off-premises as to that patient's medical history. While the examining professional will probably wish to familiarize himself or herself with all crucial details of the patient's medical history that may have a bearing on the current diagnosis and/or treatment, it is not necessary for the approach proposed in accordance with the present invention to be successful that so much detail be made available to the examining professional immediately. Rather, it is sufficient to provide the doctor at that initial stage merely with an amount of information sufficient to alert him or her to the possibilities and detriments, and to send him or her on the correct path of inquiry. The graph or image 11 appearing on the display 10 is an ideal vehicle for achieving this purpose.

Yet, for the graph 11 to be meaningful, it is imperative that it convey all the available information of the character here under consideration (i.e. the information that will be referred to herein as "evaluation data"), and in a proper relationship between different categories. For this purpose, it is proposed in accordance with the present invention to develop individual scales for the conditions afflicting the various human body systems, and to place the various conditions encountered in that category on the scale in accordance with their seriousness (from benign to life threatening) as determined by the character (i.e. potential for causing harm) and the severity (i.e. the degree of progress of the disease or affliction) of the respective condition. Thus, on

a scale from 0 to 10 (with 0 indicating either that a condition does not exist or that the patient has not been examined for that condition, and 10 denoting danger of imminent death), a particular condition (e.g. coronary artery constriction, obstruction or blockage) may start at, say, 3 (being quite serious to begin with) and rise to, say, 8 as the condition worsens (toward endangering the patient's life). Moreover, at least in some instances, a simultaneous, or even disjointed, occurrence of two or more conditions in the same category may have a bearing on the overall severity of the patient's health problem in that category. So, for instance, past occurrence of pneumonia in a patient who at that time was already suffering of a mild case of emphysema may have resulted in more damage to the pulmonary system of such patient than it would have had there been no emphysema to begin with. Therefore, at least some of such combinations of conditions may be judged in their own right as to their placement on the scale for the particular category. To give an example, if each of the emphysema and the pneumonia individually did not exceed the rating of 2, the aforementioned past concurrent existence of such conditions in the particular patient may warrant attribution of a seriousness rating of 3 (or 4 or 5, depending on circumstances) to the combination. Such scales are established for each system (category) on the basis of past experience or of statistics compiled from as big a population suffering the condition (or combination) as is possible or feasible.

Once these scales have been established and the health professionals have become aware of them and started using them, they are expected to enter the evaluation data developed during the examination of their patients into the system, to make such information relating to individual patients available to other health professionals as well. An important incentive for entering such evaluation data into the system is that each physician or other medical practitioner is also a potential beneficiary

of the system in that he or she will be apprised of conditions discovered with respect to a particular patient by other doctors or the like. Yet, additional inducements of monetary nature, either to reimburse the providers for extra expenses incurred, or as additional incentives for using the system, may also be provided by the system administrator or a similar organization.

Moreover, it is contemplated to use the thus entered evaluation data cumulatively, ordinarily without attribution to individual patients, for amending the scales or the positions of the various conditions on them if necessary or desirable. This may be useful for reflecting new developments in the medical field, such as discovery of promising treatments or even cures for certain conditions that affect the prognosis for (and hence the rated seriousness of) such conditions. It may also play an important role in developing the rating criteria as more experience is gained; this could involve relatively rare conditions or conditions with relatively short history (such as AIDS was just a few years ago), where the original background data is too sparse to be statistically reliable. In this case, the evaluation data entered into the system after the establishment of the original position of the respective condition on the scale for that category may be used to revise such positioning, if warranted by the thus gathered information.

To permit easy comparison, the graduations of the scales for the various categories are to be substantially the same, which means that conditions of similar degree of seriousness will have the same scale number assigned to them regardless of which of the categories they happen to fall into, and a comparable rise in the severity of the respective condition will have substantially the same effect on the rise in its position on the scale in each of the categories. So, for instance, if emphysema and angina pectoris in their initial stages were rated at, say, 2 because they would be rated to

be rather mild at that stage, they would both rise to, for instance, 5 as their severity increased in the same proportion.

Fig. 2 of the drawings shows one type of apparatus 20 that is suited for the performance of the method of the present invention. The apparatus 20 includes certain components that have been depicted in the drawing in a rather simplified manner because they are either totally conventional, or modified relative to similar ones currently used in different applications only to the extent necessary to implement the present invention. These components include an information processor or computer 21, and either one or both of two output devices depicted in the drawing, namely, a monitor 22 having a display screen 23, and a printer 24 that is capable of printing on a sheet of paper 25 or a similar medium. These components are conventional and perform their respective functions in the customary manner.

However, the apparatus 20 as depicted in the drawing also includes another component which is not necessarily a standard computer accessory, namely, a card reader 26, though card readers have, of course, been used heretofore with computers in specific applications. As shown, the card reader 26 has a slot 27 that is capable of receiving, or having pulled therethrough, at least a portion of a (plastic) card 28. As is well known in conjunction with credit or debit cards used in the banking industry or in other contexts, the card 28 may be provided with a magnetic strip 29 carrying certain information relating to the patient. This information is to be read, in a known way, by the reader 26 after the portion of the card 28 provided with the strip 29 is inserted in the proper manner into the slot 27. The thus retrieved information is then to be supplied through a connecting cable 30 to the information processor 21 where this information is processed in a manner that will be explained below and forwarded, through a (respective) cable 31 or 32, to that of the

display devices 22 and 24 that is actually provided and to be used.

The information recorded on the recording medium constituted by the magnetic strip 29 may be nothing more than an identification of the particular patient, such as, for instance, that patient's social security number, possibly followed by a personal identification number (PIN) chosen by or for such patient. Yet, the PIN need not be recorded on the card 28; rather, it may be available to the patient in some other manner, such as being committed to his or her memory. In that case, that information will have to be entered into the processor 21 in some other manner, such as through a (non-illustrated) numeric or alphanumeric keyboard of any known construction. Where the information on the magnetic strip 29, either alone or in conjunction with the other, such as verbal, information provided by the patient, is merely an identification of the patient, such information merely serves as a "key" to gain access to other information stored elsewhere, such as in a central or distributed repository of information to which the processor 21 has access through respective telephone or similar connecting lines (not shown). More particularly, while the processor 21 may be capable of communicating with a remote data base containing such other information with respect to the particular patient, it will typically not be able to gain actual access to such patient's information unless it provides the data base with certain identifying information (electronic data), including that concerning the "key" which is utilized to "unlock" the patient's medical history "file" (or at least a portion thereof) for forwarding to the requestor's processor 21.

On the other hand, the machine-readable information that is recorded on the card 28 (such as on the magnetic strip 29 or in or on a different information storage medium) may constitute or be descriptive of the aforementioned evaluation data needed to form the displayed image 11 on the display 10, be it the screen 23 or the sheet of paper 25. In that

case, such evaluation data can be retrieved from the strip 29 directly by the reader 26, and there is no need for the computer 21 to communicate with any outside information repository. In this situation, however, it is desirable to render it possible to update the information carried on the card 28, preferably in a simple manner, and directly on the premises. To this end, the card reader 26 may double as an information recording device usable for either replacing the previous information recorded on the strip 29 by a new one, or adding such new information to the old one. In the alternative, another device separate and distinct from the card reader 26 may be provided for this updating purpose. Devices of this type are currently being used, for instance for decrementing pre-paid amounts recorded on credit cards or fare cards, so that no further details need be presented here.

It is also contemplated to expand on this aspect of the present invention by using, instead of the card 28 provided with the magnetic strip 29 whose storage capacity is rather limited, a so-called "smart card" (i.e. a basically passive information storage device having a memory chip incorporated therein) from which stored information can be retrieved by an appropriate reader of a known construction. Since the storage capacity of such smart card exceeds that of a magnetic strip card by many orders of magnitude, the information stored thereon can go well beyond the aforementioned evaluation data. So, for instance, a card of this type can contain a complete medical record of the respective patient so that an examining health professional will not have to retrieve this information from an outside repository either. Rather, he or she will be able to obtain as much of it as needed from the smart card itself, with the patient's permission.

Of course, even in this scenario, recording means of known construction may be provided for use directly on the premises for updating

the information recorded on the smart card, either by supplanting or, more often than not, by supplementing at least the evaluation data carried on the smart card, whenever there is an amendment or addition to be recorded in any of the categories to indicate either a change in the severity of a continuing condition, or the appearance of a previously undiagnosed condition, or the return or recurrence of a previously diagnosed but dormant or presumably cured condition. Obviously, if the card carries other medical information besides the evaluation data, provisions may be made for updating such other medical information as well, in any manner that is well known to those familiar with data storage and retrieval. This may involve the use of equipment available on the premises of the medical service provider. Yet, in an alternative, the "smart card" may actually be constructed as a so-called "super smart card" which contains, in addition to memory, a miniature keyboard for entering information and processing circuitry for processing such information and storing it in appropriate storage locations of the card, as is also known. In this case, at least the evaluation data may be updated, when such updating is called for, through the keyboard and associated processing circuitry provided directly on the card.

The medical and related data contained in the system established for the performance of the method of the present invention may advantageously be used for other purposes than those mentioned before as well. Thus, depending on how much data is stored on the system and where, the evaluation data displayed in accordance with the present invention may be used by the doctor or other health professional not only as an overview of the patient's health but also as a starting point or a road map for exploring in more detail the medical history records of those areas in which the patient had had problems before, especially if they were serious and/or severe. Also, if all historical records are kept for at least

the evaluation data, the course of an illness, disease or the like can be followed by "flipping through" such historical records to see if there were changes in the rating for one or more of the categories and what they were, or by generating graphs or similar display images showing the rating for the category of interest versus time.

Moreover, if the information carried on the card includes more than just the aforementioned patient identification and/or evaluation data, and the health service provider who is about to conduct an examination of, or prescribe a treatment for, the particular patient is permitted to access more detailed medically related information as a result, such person is enabled to acquire as much of additional detailed knowledge as is relevant, in his or her judgment, for assessing the patient's condition or needed to form the correct medical diagnosis, opinion and/or conclusion relative to the particular patient. To facilitate this task, the bars 12 or other features of the image 11 appearing on the screen 23 of the monitor 23 can be used, in a well-known manner, as "icons" to permit the user of the system, for instance by using a mouse to "click" on them, to gain access to such more detailed information concerning the category associated with the particular bar 12 or image feature. Once this access is obtained, that person may then "flip through" the more detailed records to the extent considered necessary.

As mentioned above, the card 28 may carry, if the available data storage capacity permits it, additional or auxiliary data concerning further medically relevant factors besides the evaluation data and/or the more detailed previous disease and treatment information. Such auxiliary data may include, besides the aforementioned allergy, family disease propensity and similar information, identification of doctors of record, listing of tests performed or radiographic, sonographic or similar images, EKG, EEG or other graphic records taken in the course of such tests,

information about the location of the test results or such images or graphic records, complete immunization records, log of prescribed or administered prescription drugs, accompanied with information about their efficacy in and/or contraindication for the particular patient, blood type, and similar information that may be relevant in treating or prescribing a course of treatment for a particular patient. Preferably, this auxiliary information, or at least that part of it that may result in allergic reaction in or other deleterious consequences to the particular patient, may be made accessible to anyone having the card and the proper equipment, such as an ambulance driver or attendant, even if that person is unable to access any other of the medical information carried on the card, including the evaluation data. This makes it easier to follow a procedure, even in emergency situations in which the patient is unconscious or unable to communicate, that will be proper for the particular patient by avoiding taking steps that would be inappropriate for such patient, such as giving a blood transfusion using the wrong blood type, giving unnecessary tetanus shots, or the like.

It has been found to be advantageous to use a relatively fine resolution (such as ten or more levels) for the individual scales, for instance to be able to follow the progress of any particular medical condition or its cure or remission by changing the its position assigned to it on the scale for its category depending on its severity. However, it is also contemplated in accordance with another facet of the present invention to assign such levels to several groups (such as normal to mild, subchronic to chronic, and severe to life-threatening) and to associate such groups with various colors, such as green, yellow and red. Then, if the equipment 22 or 24 for displaying the image 11 is capable of presenting color renditions, the bars 12 are displayed in the various colors to provide the medical practitioner with an additional alert to potentially dangerous medical conditions.

While the invention has been illustrated and described as embodied in a particular information processing apparatus and associated accessories, it is not intended to be limited to the details shown, since various modifications and structural changes may be made without departing in any way from the spirit of the present invention. So for instance, if the evaluation data were be stored in the aforementioned outside repository, the system and method could possibly be used without any card to begin with, in that all of the information (e.g. both the social security number and the PIN) needed to "unlock" (i.e. gain access to) the evaluation data could be furnished by the patient, either from memory or by referring to a written record thereof.

Without further analysis, the foregoing will so fully reveal the gist of the present invention that others can, by applying current knowledge, readily adapt it for various applications without omitting features that, from the standpoint of prior art, fairly constitute essential characteristics of the generic and specific aspects of the contribution to the art and, therefore, such adaptations should and are intended to be comprehended within the meaning and range of equivalence of the claims.

What is claimed as new and desired to be protected by Letters Patent is set forth in the appended claims.

CLAIMS:

I claim:

1. A method of apprising health professionals about the general state of health of their patients, comprising the steps of

a. conducting at least one medical examination of the respective patient for the existence of conditions affecting the patient's health;

b. evaluating the results of the medical examination, including

i. assigning any particular one of such conditions that was found to exist in the respective patient to one of a predetermined number of categories each relating to a different one of various human body systems,

ii. rating the seriousness of each such particular condition within the category to which it is assigned on a seriousness scale specific to that category, and

iii. recording at least evaluation data indicative of the results of said assigning and rating steps regarding the respective patient on a recording medium suitable for access by other health professionals; and

c. utilizing the thus recorded evaluation data during a subsequent medical examination of the respective patient to alert an examining health professional to possible health problems of such patient, including

i. accessing the data previously recorded on the recording medium regarding the respective patient as an appurtenant to such subsequent examination,

ii. retrieving from the recording medium

at least the previously recorded evaluation data regarding the respective patient; and

iii. generating at least one visually perceptible report that displays the thus retrieved evaluation data by category and rating.

2. The method as defined in claim 1, further comprising the step of coordinating the scales of all of the categories with one another to be commensurate with one another such that conditions of comparable seriousness are rated the same regardless of their category; and wherein said generating step includes displaying said evaluation data graphically by category and position on the respective scales with substantially the same graduations for all of the scales.

3. The method as defined in claim 2, wherein said coordinating step includes collecting background information about all of the conditions that may afflict each of the various human body systems, and using such background information for attributing to each of such conditions a numerical value expressing the seriousness of such conditions relative to others in the same category, and the severity of each such condition; and wherein said rating step includes determining the severity of said particular condition to ascertain said numerical value therefor.

4. The method as defined in claim 1, wherein said recording step includes storing said evaluation data on a data storage card issued to the particular patient; and wherein said retrieving step includes reading said evaluation data from the data storage card.

5. The method as defined in claim 4, and further

comprising the step of providing an evaluation data update upon the conclusion of the medical examination; and wherein said recording step includes storing such evaluation data update on the data storage card.

6. The method as defined in claim 1, wherein said rating step includes giving each condition encountered in a particular patient during the medical examination a rating on one of a multiplicity of different levels of the respective scale that is indicative of the character and severity of such condition.

7. The method as defined in claim 6, wherein said rating step further includes assigning said levels to different adjacent groups each containing a sequence of said levels of progressively increasing seriousness of the condition.

8. The method as defined in claim 7, wherein said rating step further includes associated each of said groups with a different color; and wherein said generating step includes forming said report as a color image differentiating said groups by said colors assigned thereto.

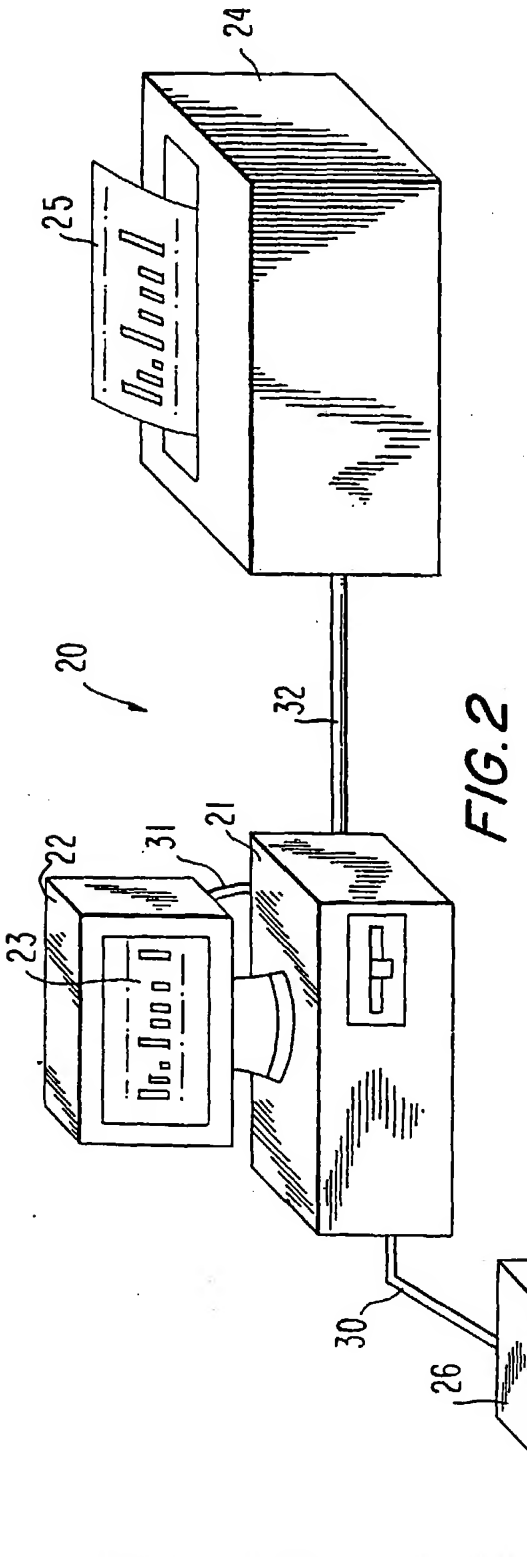
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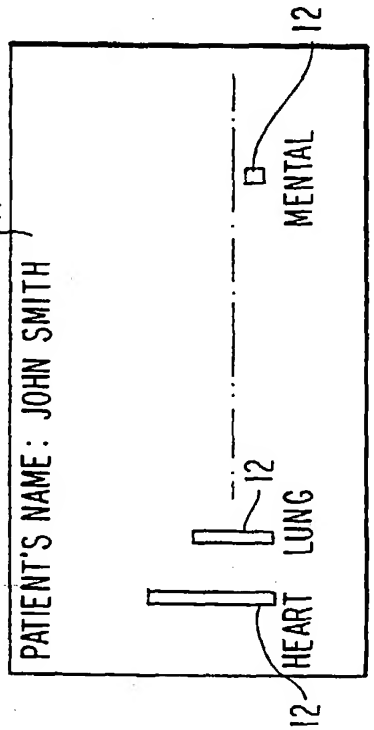
FIG. 2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PATIENT'S NAME: JOHN SMITH
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MENTAL
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LUNG
HEART
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FIG. 1

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US95/03491

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :G06F 17/60
US CL :364/401
According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 364/401, 224.5, 224.6, 413.02; 283/900

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

Computer Select Database, Dialog
Seaech terms: smart card, medical record, rank severity, rate severity

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	IEEE/IEEE Publications Ondisc, 1992, Arthur Kaufman and Lloyd H. Woodward, "Plustag-Magic Medical Record System", pp. 165-167, especially page 167	1-8
Y	US, A, 4,464,122 (FULLER ET AL) 07 August 1984, Abstract, col 6, line 32 - col 7, line 28, col. 10, lines 20-61.	1-8
A	US, A, 4,975,840 (DETORE ET AL) 04 December 1990	1-3, 6-8
A	Los Angeles Times, 12 April 1993, Metro section, page 7, pt. B, col. 1, Peter J. Ognibene, " 'Smart Cards' Could Save Lives--and Dollars"	1-8

☐ Further documents are listed in the continuation of Box C. ☐ See patent family annex.

*	Special categories of cited documents:	"T"	later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
"A"	document defining the general state of the art which is not considered to be part of particular relevance	"X"	document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
"E"	earlier document published on or after the international filing date	"Y"	document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
"L"	document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)	"&"	document member of the same patent family
"O"	document referring to an oral disclosure, use, exhibition or other means		
"P"	document published prior to the international filing date but later than the priority date claimed		

Date of the actual completion of the international search 22 MAY 1995	Date of mailing of the international search report 06 JUL 1995
Name and mailing address of the ISA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231 Facsimile No. (703) 305-3230	Authorized officer GAIL O. HAYES Telephone No. (703) 305-9711

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